IN THE CLAIMS:

1. (currently amended) An isolated population of solid tumor stem cells obtained from a solid tumor of epithelial origin, wherein the population comprises ~~comprising wherein~~:

~~(a) the isolated population of~~ at least 75% solid tumor stem cells ~~comprises~~ and less than 25% ~~non-tumorigenic~~ solid tumor cells, wherein the solid tumor stem cells:[[;]]

(i) are tumorigenic;

(ii) express CD44; ~~and~~

(iii) do not express detectable levels of one or more LINEAGE markers selected from the group consisting of CD2, CD3, CD10, CD14, CD16, CD31, CD45, CD64, and CD140b; and

(iv) do not express CD24 or express low levels of CD24;

and wherein the solid tumor cells are non-tumorigenic.

~~(a) the solid tumor stem cells are tumorigenic;~~

~~(c) the solid tumor stem cells express CD44; and~~

~~(d) the solid tumor stem cells do not express detectable levels of one or more LINEAGE markers CD2, CD3, CD10, CD14, CD16, CD31, CD45, CD64, and CD140b.~~

2-3. (canceled)

4. (previously presented) The isolated population of solid tumor stem cells of claim 1, wherein the solid tumor stem cells do not express detectable levels of LINEAGE markers CD2, CD3, CD14, CD16, and CD64.

5. (canceled)

6. (previously presented) The isolated population of solid tumor stem cells of claim 4, wherein the solid tumor stem cells do not express detectable levels of the LINEAGE markers CD10, CD31, and CD140b.

7. (canceled)

8. (previously presented) The isolated population of solid tumor stem cells of claim 1, wherein the solid tumor stem cells are breast cancer stem cells or ovarian cancer stem cells.

9. (previously presented) The isolated population of solid tumor stem cells of claim 1, wherein one or more of the solid tumor stem cells contain a polynucleotide vector.

10. (previously presented) The isolated population of solid tumor stem cells of claim 9, wherein the polynucleotide vector is a viral vector or a plasmid.

11. (previously presented) The isolated population of solid tumor stem cells of claim 9, wherein the polynucleotide vector comprises a reporter polynucleotide.

12. (previously presented) The isolated population of solid tumor stem cells of claim 11, wherein the reporter polynucleotide provides a detectable signal when active in a solid tumor stem cell.

13. (previously presented) The isolated population of solid tumor stem cells of claim 1, wherein one or more of the solid tumor stem cells comprises a recombinant polynucleotide.

14. (previously presented) The isolated population of solid tumor stem cells of claim 13, wherein the recombinant polynucleotide is integrated into a chromosome of one or more of the solid tumor cells.

15-17. (canceled)

18. (previously presented) The isolated population of solid tumor stem cells of claim 1, wherein the solid tumor stem cells are in a culture medium.

19. (previously presented) The isolated population of solid tumor stem cells of claim 18, wherein the culture medium comprises a Notch ligand.

20. (previously presented) The isolated population of solid tumor stem cells of claim 1, wherein the solid tumor stem cells are affixed to a substrate.

21. (previously presented) The isolated population of solid tumor stem cells of claim 1, wherein the solid tumor stem cells have been treated to reduce proliferation.

22. (previously presented) The isolated population of solid tumor stem cells of claim 1, wherein the solid tumor stem cells have been treated to increase proliferation.

23. (currently amended) An enriched population of solid tumor stem cells obtained from a solid tumor of epithelial origin, comprising solid tumor stem cells and solid tumor cells, wherein the solid tumor stem cells:

(a) are enriched at least two-fold;

(b) are tumorigenic;

(c) express CD44;

(d) do not express detectable levels of one or more LINEAGE markers selected from the group consisting of CD2, CD3, CD10, CD14, CD16, CD31, CD45, CD64, and CD140b; and

(e) do not express CD24 or express low levels of CD24;

and wherein the solid tumor cells are non-tumorigenic.

~~(a) the solid tumor stem cells are tumorigenic;~~

~~(b) the solid tumor stem cell population is enriched at least 2-fold;~~

~~(c) the solid tumor stem cells express CD44; and~~

~~(d) the solid tumor stem cells do not express detectable levels of one or more LINEAGE markers CD2, CD3, CD10, CD14, CD16, CD31, CD45, CD64, and CD140b.~~

24-27. (canceled)

28. (original) The enriched population of claim 23, wherein the population is at least 5-fold enriched.

29. (original) The enriched population of claim 23, wherein the population is at least 10-fold enriched.

30. (original) The enriched population of claim 23, wherein the population is at least 50-fold enriched.

31. (canceled)

32. (currently amended) A method of enriching for a population of solid tumor stem cells, the method comprising:

(a) dissociating a solid tumor of epithelial origin;

(b) contacting the dissociated cells with a first reagent that binds CD44, a second reagent that binds one or more LINEAGE markers selected from the group consisting of CD2, CD3, CD10, CD14, CD16, CD31, CD45, CD64, and CD140b, and a third reagent that binds the CD24 marker; and

(c) selecting cells that bind to the first reagent and that do not detectably bind or bind poorly to the second and third reagents wherein the selected cells are enriched in solid tumor stem cells.

33. (canceled)

34. (previously presented) The method of claim 32, wherein the first or second reagent is an antibody.

35. (previously presented) The method of claim 32, wherein the first or second reagent is conjugated to a fluorochrome or magnetic particles.

36-37. (canceled)

38. (previously presented) The method of claim 32, wherein the cell selection is performed by flow cytometry, fluorescence activated cell sorting, panning, affinity column separation, or magnetic selection.

39. (canceled)

40. (previously presented) The method of claim 32, further comprising: (d) isolating the selected solid tumor stem cells.

41-187. (canceled)

188. (previously presented) The method of claim 32, wherein the solid tumor stem cells are breast cancer stem cells or ovarian cancer stem cells.

189-193. (canceled)

194. (previously presented) The enriched population of solid tumor stem cells of claim 23, wherein the solid tumor is a breast cancer or an ovarian cancer.

195-198. (canceled)

199. (previously presented) An enriched population of solid tumor stem cells isolated by the method of claim 40.

200. (previously presented) The isolated population of solid tumor stem cells of claim 1, wherein said solid tumor stem cells further express B38.1.

201. (previously presented) The isolated population of solid tumor stem cells of claim 1, wherein said solid tumor stem cells further express epithelial specific antigen (ESA).

202. (previously presented) The enriched population of claim 23, wherein said solid tumor stem cells further expresses B38.1.

203. (previously presented) The enriched population of claim 23, wherein said solid tumor stem cells further expresses epithelial specific antigen (ESA).

204. (previously presented) The method of claim 32, wherein said selected cells are further enriched for cells expressing B38.1.

205. (previously presented) The method of claim 32, wherein said selected cells are further enriched for cells expressing epithelial specific antigen (ESA).

206. (previously presented) The isolated population of solid tumor stem cells of claim 1, wherein the solid tumor stem cells express low levels of CD24.

207. (previously presented) The isolated population of solid tumor stem cells of claim 1, wherein the solid tumor stem cells do not express CD24.

208. (previously presented) The enriched population of claim 23, wherein the solid tumor stem cells express low levels of CD24.

209. (previously presented) The enriched population of claim 23, wherein the solid tumor stem cells do not express CD24.

210. (previously presented) The method of claim 32, wherein the selected cells do not detectably bind to the second and third reagents.